

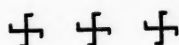
RECORDS ^{OF} THE PAST

VOL. III



PART VI

JUNE, 1904



ANCIENT CARAVAN ROUTES OF CHINA

BY FREDERICK BENNETT WRIGHT

THE construction of railroads in Asia is gradually reducing the importance of the caravan routes which have been used from the earliest times. The Desert of Gobi is crossed by 2 such trunk lines of communication between China and Western Asia. The southern route starts at Nankin, runs northwest to the Yellow River at Kaifung, follows up that stream until the river turns off to the north at a right angle. From there it runs in a direction about west-north-west across the western lobe of the Desert of Gobi to Turfan, where it branches into 2 main lines, 1 passing into Turkestan by way of Aksu and Kashgar, the other passing north into the Lake Balkash region by way of Kuldja.

The other great caravan route extends from Peking to Southern Siberia. This has 2 branches, 1 going to Lake Baikal by way of Urga and Kiakhta, the other to the Province of Semipalatinsk in Southern Siberia.

These 2 routes have been the principal lines of communication between China and Western Asia, from which place many routes lead into Europe. Long trains of camels, especially at dusk and the earlier part of the night, are still to be seen plodding along the dusty paths.

Although the amount of traffic is rapidly decreasing, yet between 6 and 9 o'clock one evening we met 700 camels near Chau Tau, loaded with hides from Siberia, which were billed through to Peking.

The general course of these routes has remained constant, but in the level plains they branch off into diverging paths, to be reunited at some important point. Between Peking and Kalgan the age of some of the paths is indicated by the enormous depth to which the tramp of countless caravans has worn them.

The valleys in much of the region crossed are filled with deep deposits of a very fine dusty, yellowish-brown loam, called loess, which is characterized by its remarkable tenacity. This is so marked that cliffs of this formation will stand for centuries with perpendicular sides. In fact, not only houses, but whole villages are built in the hills of this deposit.

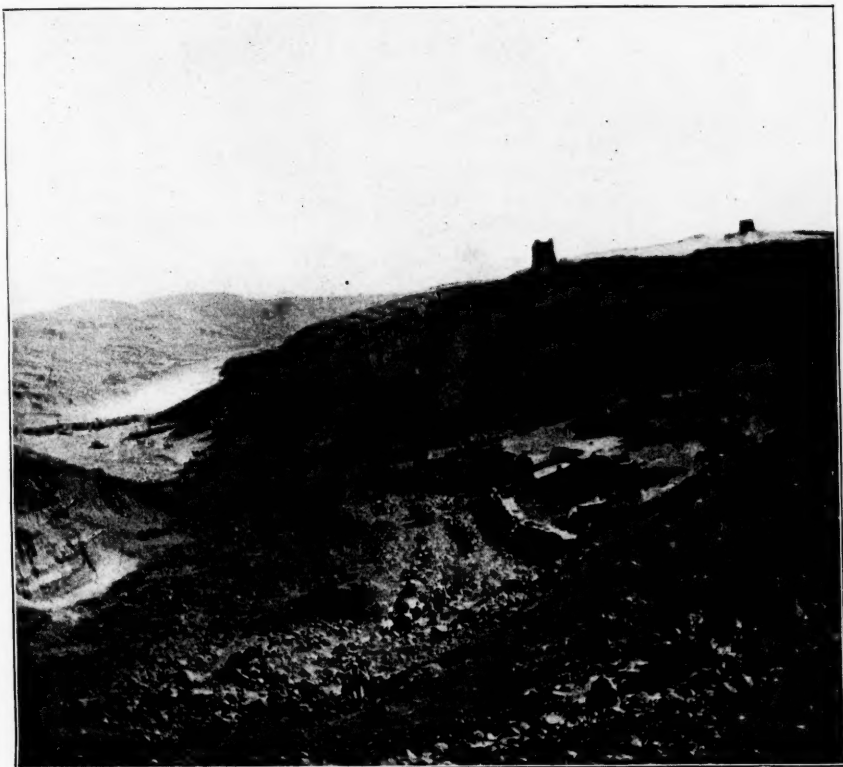
In places where the caravan route goes over small hills of loess the path, just wide enough for 2 camels to pass, is often worn down 10, and in some cases 15 ft. A small part of this is doubtless due to water erosion, but the greater part is the effect of the constant passing of camels, whose feet loosen the dust, which the strong winds of this region blow off to the surrounding plains. That water has done little to deepen these paths is shown in sections where 2 or more such paths run parallel, are only separated by a few feet, and have practically no drainage basin, and also by the fact that the depth on the brow of the hill is often nearly as deep as at the foot.

At Chau Tau the route passes through the inner section of the great Chinese wall. The gate and wall here have been restored at various times, the last restoration being made with large bricks, between 3 and 4 times the size of our bricks. At Kalgan the route passes through the outer and oldest section of the Chinese wall. With the exception of the gate opening into the narrow pass northwest of Kalgan little has been done, since the building of the inner wall, to keep the outer wall in repair.

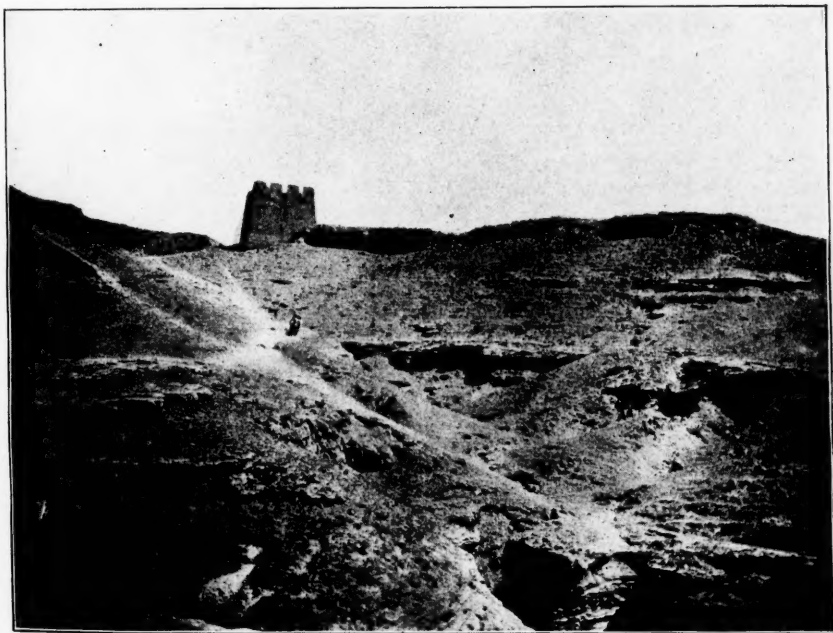
Originally the gate of Kalgan was so narrow that animals could only pass through it in single file. Yet in spite of the trying congestion of horses, camels, mules, donkeys, oxen, and Chinese, which this caused, it was not till a few years ago that the gate was widened so as to give free passage.

The old wall from Kalgan, following along the edge of the Mongolian plains, which skirt the Desert of Gobi, is more interesting than the wall at Chau Tau and other localities more often visited. The greater part of the wall here is built of local stone, but the gateway and outstanding towers are of brick. Besides the towers on the wall at more or less irregular intervals there are other towers entirely separated from the wall.

Of still older date than this wall are the mounds which are found along the caravan route on the Mongolian border. (See RECORDS OF THE PAST, Vol. I, 6.)



ISOLATED TOWERS NEAR THE CHINESE WALL. VIEW FROM THE CARAVAN ROUTE BETWEEN KALGAN AND HAN-OOR ON THE MONGOLIAN BORDER



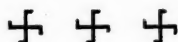
GREAT CHINESE WALL, AS SEEN FROM THE CARAVAN ROUTE NEAR KALGAN

The outer wall of China was built in the III Century A. D., but the caravan route must have been in use for centuries earlier. The old Chinese coins found in the fertile plains of the upper Yenisei River, now collected and preserved in the museum at Minusinsk, show that the commercial intercourse with China is not of recent origin. In fact, the probabilities are that early in the Christian Era it was much larger than now, for evidence is continually coming in to show that not many centuries ago the whole Desert of Gobi was less arid than it is now, and supported a considerable population. In the western lobe of the Desert of Gobi the sand-buried cities testify to a climatic change in that region and one which evidently was not local.

The geography of the country has determined these great caravan routes, and although the camel and the mule will eventually be replaced by the locomotive, engineers will have difficulty in finding more favorable routes than those determined by centuries of natural selection by the camel drivers.



CHINESE INN, SHOWING THE CHARACTER
OF CARTS USED ON THE MONGOLIAN PLAINS



GERMAN EXCAVATIONS IN BABYLON, 1901 AND 1902

Translated from German official reports by Prof. Karl Hau

THE excavations on the south side of the Kasr mound during March, 1901, brought to light a great many beautifully glazed tiles, ornamented with flowers and twigs. The composition of the drawing is far from simple. The ornaments are not in relief, but look very similar to, and show the same technique as the relief-tiles. One of them shows the trunk of a human figure about 40 cm. in height. Besides these tiles many carved stones were found containing similar, but more delicately executed designs. Only the former

bear the stamp of Nebuchadrezzar, but Dr. Koldewey is not certain that the latter belong to a subsequent period of restoration. In these ruins were found many later graves, glazed and unglazed sarcophagi.

While the tiles found on the western side bear the ordinary stamp of Nebuchadrezzar those on the eastern side show a lion with an Aramaic inscription. But there is no doubt that this part also was built by Nebuchadrezzar, since several wall-tiles have on their narrow side the palace-inscription of the King. In the great wall that incloses the building on the east, no tiles with stamps or inscriptions were found, and according to the general plans of the palace this wall is much older than the rest. It contains the massive arched gate shown in the accompanying illustration, which is one of the most imposing ruins yet discovered and of the utmost importance for the history of architecture.

In the western court of the palace, 2 fragments of a clay-prism were found and a fragment of a small cylinder; the latter, according to the opinion of Dr. Wissenbach, dates from the time of Sardanapallus and treats of the construction of Imgur-Bel and Nimitti-Bel.

The brick pavement of the courts is generally well preserved, but the walls are almost totally destroyed; this, however, has not yet proven an obstacle to our drawings, and when the excavation is completed this will certainly be the most perfectly preserved Babylonian palace ground plan yet recovered.

Of the Processional Street of Marduk, that part in the plain, which immediately adjoins the "Kasr" in the south, is missing. The street began at a distance of about 150 m. to the south, while the formation of the rubbish in this intermediate space, as was found out by some tentative excavations, seems to show that originally there had been water there. This view was supported through a canal sewer discovered in the neighborhood. I therefore searched this intermediate space by means of a very deep ditch and expected to find the remnants of a bridge, but this search was without result. The passage therefore must have been established either by means of a pontoon-bridge or a wooden construction, which has completely disappeared, unless "the procession of the great Lord Marduk" crossed the water south of the "Kasr" in the "ship of the procession on New Year's Day, the festival of Shuana," which is mentioned in K. B. III, 2 S. 17.

The excavations during the last of April, 1901, established a connection between the younger eastern and the older western palace. The latter contains in its upper stories stamps of Nebuchadrezzar, below no stamps have been discovered up to the present time.

Our excavations in the southwestern part of the "Kasr" have resulted negatively; some Parthian ruins and an unimportant fragment of a Babylon boundary-stone have been found after digging about 7 m. deep.

Early in June a number of glazed tiles containing very delicately executed ornaments, probably belonging to the time of a Persian restoration, were found. One of these enameled-partition-tiles (*Email-*

cloisonne-Ziegeln) bears the design of a human figure in a rich garment, holding a spear (?) in his right hand. The tassel on the left probably belongs to a preceding figure.

The cross-cut through the southwestern castle is now completed from the summit of the small hill down to the underground water. The hill is of Parthian origin; about 2 m. above the underground water we found about 80 small bronze coins of the Seleucidian period.

The great palace-court of the "Kasr" is now entirely cleared; on the south side there is a vast chamber, on the entrance of which were the above mentioned ornamented tiles.

During August, 1901, excavations were carried on in the hills southeast of Amran. These hills are known in European literature as *Dschumdschuma* from a neighboring village, but are called by the Arabs *Nishan el-aswad*—The Black Hills. A little to the south of our excavation is the place where the famous tablets were found. Several holes and rubbish heaps show that even in this same place excavations have been carried on at some earlier date, but these must have been quite insignificant. Four ditches about 7 m. deep, which go down to the underground water and are 20 m. removed from each other, have been opened. As was expected, a great many private antiquities were found here. The tablets are badly preserved and can be conserved only with great difficulty. Some, however, are very interesting with old Babylonian inscriptions very delicately executed. Dr. Weissenbach is of the opinion that they contain hymns, exorcisms, "omina," letters, contracts and vocabularies.

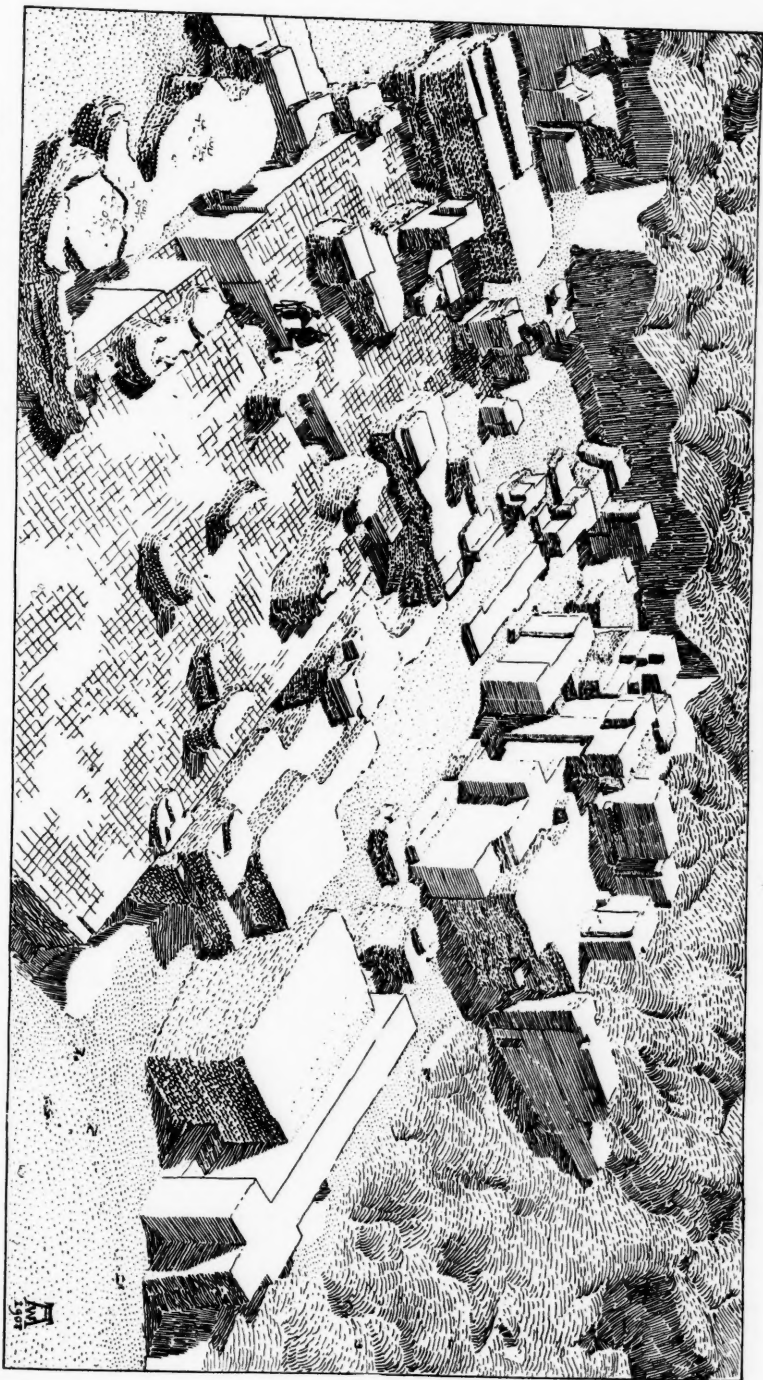
In one of the ditches several very finely modeled clay sculptures were found. These probably belonged to the Assyrian period, as nothing belonging to a later period and no coins have yet been discovered.

An important addition to the Assyrian Syllabar and to the Assyrian and Sumerian vocabulary in new Babylonian characters has been found. It is composed of 84 lines and contains a hymn to Marduk in the form of a litany.

In the temple of the god Adar a cylinder of Nabopolassar—the father of Nebuchadrezzar—was discovered during the latter part of October. During the same month in the northern ditch the ruins of a temple were discovered, at least it is supposed to be a temple, because a small fragment of a cylinder was discovered containing the words, "e-nu-ma bitu"—in those times "the temple"—(had gone to ruins). This phrase usually begins recitals of the restoration of a temple. About 100 fragments of tablets were also found here.

On October 28, 1901, Dr. Koldewey wrote that the building in *Nishan el-aswad*, the western chambers and part of the court had been excavated. In the rubbish of the latter, a second cylinder-fragment was found and another one quite complete was found day before yesterday in a northwestern chamber under the door. The former has a height of 13 and a circumference of 24 cm., 41 lines of legible new Babylonian characters; the beginning and the end are broken off.

THE EXCAVATIONS OF THE PRINCIPAL MOUND FROM THE NORTHWEST, SHOWING THE WALL 17 M. THICK



Of the first line the following can be deciphered: The "Na-bi-um-aplu," suggesting that it is an inscription of Nabopolassar. The temple is dedicated to the god Ninib and has a very interesting ground plan. The tiles in the upper stories bear the stamp of Nebuchadrezzar, who must have restored and reconstructed this temple. Tablets found in the rubbish bear the dates of the successors of Nebuchadrezzar down to Cyrus. We intend to completely excavate the temple. Between July 25 and August 17, 400 tablets were found in *Nishan el-aswad*, and 200 of these during the week August 12 to 17.

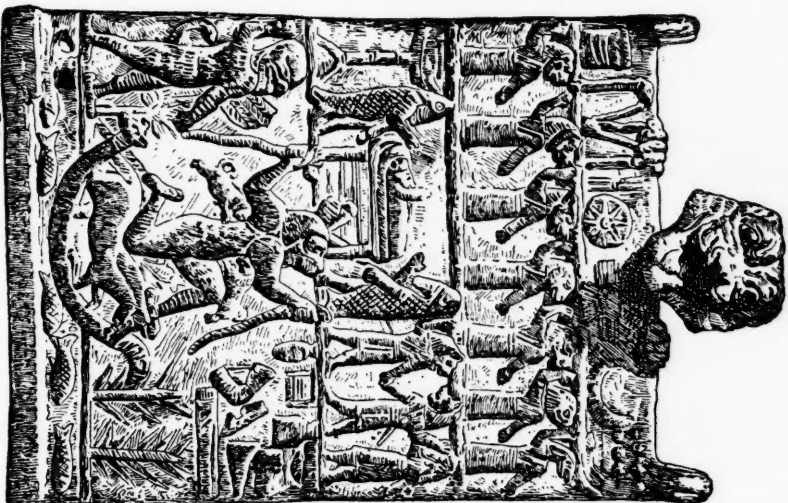
In the rubbish of the court of the Nibi Temple, the head of a "nail-cylinder" (Nagel-cylinder) was found early in November. It bears an inscription referring to a King Sin-ma-as-ha (Simmashihu?). A fragment of the lower part of another cylinder was found, but does not belong to this head, although showing the same characters.

In the Adar (Ninib) temple 2 other building cylinders (?) were found of the same kind and with the same inscription as the one about which I reported on October 27. The one lay under the threshold of the southern, the other under that of the northern cella. The texts complete each other very well, as will appear in Dr. Weissenbach's report.

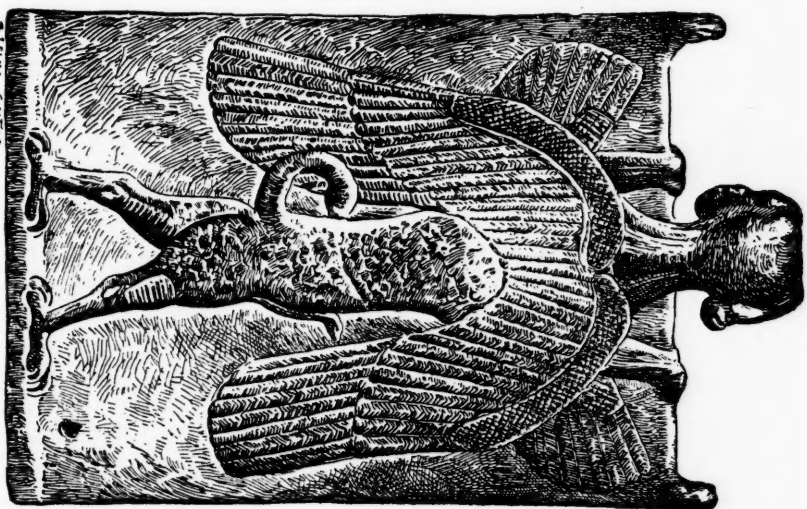
The temple is now almost completely excavated; we are still working at the southern and eastern front, because it was here that we found the 2 very valuable tablets. The main cella is emptied to the underground water. On the bottom a capsule composed of bricks was found, containing a human figure in unbaked clay. It represents a bearded man about 15 cm. high, with a sort of Phrygian cap, whose left arm hangs down, while the protruding right holds something that looks like a staff. Since the little fellow has leaned on the wet wall for over 2,500 years, just that part of his shoulder has disappeared, which contained a small inscription, so that only a few characters are still visible. Similar capsules were found elsewhere, one before the threshold of each of the 3 vestibules on both sides of the entrance and a bigger one about 50 cm. high, in the midst of the northern and southern vestibule. They contained partly remnants of statuettes of some perishable material, of which only the metallic parts are preserved. These consisted of copper shoulder-belts with sword sheath, comparatively long swords, clubs with agate points. In some of them the hand, too, is still preserved, and Mr. Andr  tried to preserve them with fluid wax.

On the southern portal a brick of secondary use was found. It contains on the flat side an inscription of Assarhaddon (11 lines), dealing with the construction of Etemenauki. The inscription was of interest to me because it gives in new Babylonian characters the old Babylonian text of the brick. [See Hilprecht, *Bab. Exp. A. I*, II No. 151.]

Later in December a building-cylinder was found, the interior part of red clay. It was not found *in situ*, but in a small house of a



OBVERSE VIEW OF "HADES-RELIEF"



REVERSE VIEW OF "HADES-RELIEF"

later period on the eastern slope of the Amran in the rubbish; the left part is broken off, the surface washed away and shows the traces of having been used as a pestle. The remnant of the last and of the last but one column are preserved; on the whole, there were perhaps only these 2. The greatest circumference is 32 cm. The inscription contains a report of the buildings of Nebuchadrezzar in general and of the "Kasr" in particular. The introduction to the second part begins with "Theu," which is the case with all of these cylinders. This word characterizes the special reference to the building to which the cylinder refers and separates it from the other general observations. So on the Sardanapal cylinder of Emach [Z 13] and on the E-patu-tila cylinder of Nabopolassar, which were found *in situ*. The value of this clue is sometimes very great.

The translation of the text is as follows:

21 Then the castle of Babylon . . . 22 In order to fortify 360 yards of Nimitti-Bel, 23 The Schalchu (outworks) of Babylon, 24 I have from the border of the stream to (a certain point) of the Ishtar gate 25 two strong walls of brick and mortar 26 like a fortress mountain-high erected.

[These 2 walls are probably the western, inner wall and the north wall.]

27 Therein I erected a terrace of brickstones; 28 upon which I built a mighty castle, 29 as the seat of my realm 30 with mortar and brickstone, 31 established a connection with the (former?) palace 32 and created the seat of dominion.

[The former palace with which this new one was connected lies in the south castle. In the analogous place of the "great stone-plate inscription" [viii, 58] it is called the "palace of my father."]

33 I doubled from the (upper?) corner near the Ishtar gate 34 down to the (lower?) corner of the eastern Nimitti-Bel 35 for purposes of fortification 360 yards of the front side of Nimitti-Bel.

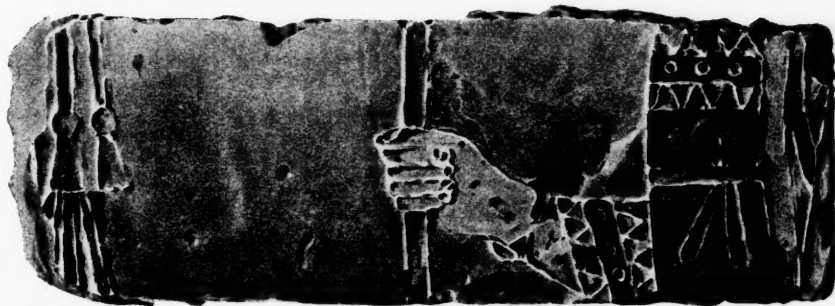
This is an exceedingly important passage, since for the first time in all the inscriptions of Nebuchadrezzar he mentions the double wall on the eastern side of the main-castle himself and states that it was erected for the purpose of fortifying some part of Nimitti-Bel. Tuigur-Bel is not mentioned at all. The double wall forms the eastern front of Nimitti-Bel only. The bricks in this neighborhood very frequently bear the Aramaic Stamp, N(imitti) B(el). This conclusively disproves Delitzsch's idea of the situation of Nimitti-Bel. Tuigur-Bel must have been the fortress-wall of the south-castle and the gate that is reproduced in No. VIII, page 5, is a gate of Tuigur-Bel. Several other conclusions may be drawn from this passage, but I reserve them for a later report.

The end of the inscription is as follows:

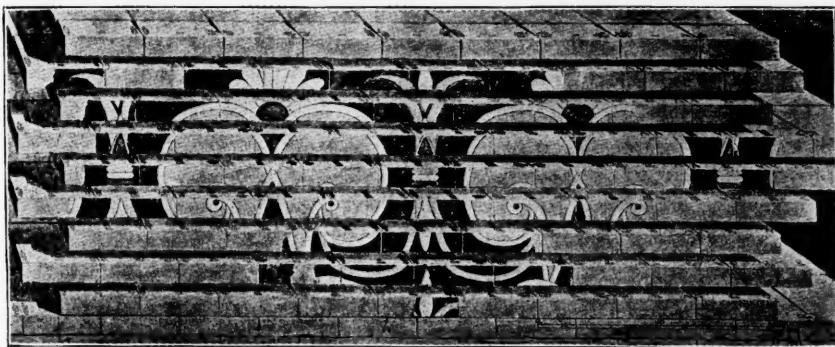
36 A strong fortress of brick and mortar I have (mountain-high erected)
37 The castle scientifically fortified 38 The city of Babylon made a stronghold.

With "Babylon" Nebuchadrezzar always primarily means the fortress, but he uses the word sometimes as extended to the city as well.

The final prayer follows, Line 39-46. In a note Dr. Friedrich Delitzsch raises some philological objections to Dr. Koldewey's transla-



COLORED ENAMELED TILE FROM THE SOUTHERN HILL OF THE "KASR"



ORNAMENTAL TILE WORK

tion of this important inscription, in defense of his views on the plan of the side of Babylon.

The excavations in the building a-d, 35 (Amran-plan) are almost completed [January, 1902]; it is a temple. A naked standing female figure with a child on the breast is found so frequently that I suppose the temple was dedicated to a goddess. In a building cylinder-fragments found in rubbish, the first and the last line of the first column are readable. "Nebuchadrezzar. 2. King of Babylon. 3. A just ruler. 4. Renovator of Esagila and Ezida. 5. Firstborn son of Nabopolassar. 6. King of Babylon I am. 7. From the upper sea. 8. To the lower sea. * * *"

The investigation of the Processional Street of Marduk has proceeded so far, that the last part of the well preserved street pavement was found in Q, 12 (Amran-plan). The street coming from the east enters here a spur of the hill Amran, which covers it about 12 m. high. The question is, where the street entered Esagila, and in order to find this out we have begun in the western part a new ditch, which must reach a considerable depth.

Mr. Andræ's colored reproductions of the ornaments found in the south-castle have recently been sent with the English mail. I enclose

to-day [January 28, 1902] 2 reports of Dr. Weissenbach, discussing No. 3,627, Dolerit-block, found in the Kasr [r, 9], on the 17 of the following inscriptions:

October, 1899.

No. 6,378, club point of quartz, found near the Amran [t, 13] on April 17, 1900.

No. 6,405, club point of diorit, found near the Amran [q, 13] on April 18, 1900.

In the temple a-c, 35 (Amran-plan), the cella has been emptied to the underground water. As expected, we found in the lower stratum the little clay fellow, our friend from the Adar-temple, this time very well preserved, having a golden staff in his hand and an inscription of 4 lines on his back. Also before the northern temple door we found 2 capsules, one of which contained a dove (?) of clay, similar to the one found formerly in the Ninmach-temple, also with an inscription of 4 lines.

From Dr. Weissenbach's 2 reports: The fragment of the dolerite block, B. E. 3,627, with 2 columns of new Babylonian cuneiform characters, is a duplicate of the famous inscription of King Darius on the rock of Bisutum [lines 55, 58, 69, 72]. All who know the tremendous historical importance of this inscription will welcome the additions, supplemented by this duplicate (new words are italicised):

Col. I.

[For the second time] [the rebels] assembled and marched against Vau-misa, to offer 2 battle. Then they fought in a country named *Utiari in Armenia*. 3 Protected by Ahuramazda my army 4 defeated the rebels. We fought on the 30 Aiaru. We killed 5 from among them 2045 and caught alive 14 (?) 59. 6 Thereupon Vaumisa *did nothing, (but) waited for me*, until 7 I came to Media. Darius, the King, 8 speaks as follows: Then I left *Babylon* and went to Media. Arriving in Media, in a city, named Kundur, 10 in Media, against which *my enemy Fravartis*, the same who had declared: '*I am the King of Media*' had marched with 12 an army, to offer battle. *Thereupon we fought*. 13 protected by Ahuramazda, I defeated the army of Travartis, etc.

Col. II.

1 They fought with the men from Margiana, 2 Protected by Ahuramazda, my army defeated 3 those rebels. They fought on the 23 Kislima. They killed 4 from among them 420 (?) 3 and caught alive 5, 69 (?) 70. Darius, the King, speaks as follows: Thereupon the country 6 *was mine*; that I did in Bactria. 7 Darius, the King, speaks as follows: A person, Vahyazdata 8 *by name in a city, called Tarava* in a country called Jutia, in Persia, 9 rose up in Persia; he spoke to the people: I am 10 Bardija, son of Kurus. Thereupon the people of Persia as many as were *in the palace (?) of the city of Jutia* (?) rebelled against me, 12 *went over to him*, he was King in Persia. 13 Darius, the King, speaks as follows, etc., etc.

B. E. 6,378, a club point of a reddish stone, is the gift of a King, probably belonging to the III Dynasty of Babylon, by the name of [Me-]li-si-hu-mar Ku-ri-gal-zu "Melisihu, son of Kurigalzu," to a

diety whose name is not preserved. Therefore in the document IV R. 38, which speaks of "Marduk-apluidina, King over all, King of Sumer and Akkad, Son of Melisihu, King of Babylon, grandson (?) of Kurigalzu, the King without equal," the still questioned word SA. BAL. BAL. really means "grandson," and we have in the list of "Babylonian Kings besides the King of the III Dynasty Melisihu, Son of Adadnadin-ahi, another Melisihu, Son of Kurigalzu, and also besides Marduk-aplu-iddina, Son of Melisihu (the Son of Adad-nadin-



SOUTH HILL OF THE "KASR," SHOWING ARCHED GATE IN THE FORTRESS WALL

ahi), another Marduk-aplu-iddina, Son of Melisihu (the Son of Kurigalzu) and besides the already known 2 Kings Kurigalzu a third one of the same name.

B. E. 6,405 finally, a club point of a black-green stone bears an inscription of 10 lines divided into 2 columns of old Babylonian characters:

'Club point (hi-in-gi) of Diorit (Koldewey's translation of Aban su-u)

belonging to the U-lam (?) -bu-ra-ri-ia-as, Son of King Bur-na-bu-ra-ri-ia-as, the King of the sea-country. He who extinguishes (ipassitu) this name and writes his own in its place may his name be extinguished by Ninib, Nebo, Ea, Marduk and Belit.'

DOCUMENTS FOUND IN BABYLONIAN COFFINS

BY DR. FREDRICH DELITZSCH

Since Thureau-Daugin, a French Assyriologist, published the inscription of a clay-cone, found in a Babylonian coffin [see *Orientalistische Literatur-Leitung* of January 15, 1901], the Asiatic department of the Royal Museums in Berlin has acquired 2 similar documents.

The inscriptions on these clay-cones in old Babylonian characters, although varying in unimportant details, are essentially the same.

Ana matima, etc. Translation:

For all times, forever, for eternity, for all future! Do not keep (?) this coffin if you find it, but bring it back to its old place! He who reads this and does not slight it, but speaks: I will bring this coffin back to its old place—may he be rewarded (?) for his good deed! Above his name be blessed, below may his Manes drink clear water!

This last blessing, promising as a reward for pious deeds clear water in the Hdesa, the "country without return," is of importance for the history of religion. It draws a distinction in the life after death, the continuance of the soul in Sheol, justifying a conclusion drawn by me in "Babel und Bibel," between a hot hell on one side and a garden richly blessed with water on the other.

A NEW TEXT OF THE KING NABOPOLASSAR

The inscription, 41 lines in new Babylonian characters, is much damaged in all 4 copies, but can be reconstrued through a comparison of them as follows:

Nabopolassar, the King of Justice, the shepherd whom Marduk has called, the offspring of the goddess 'Lady of the Heavenly Crown' (*belit ilani*) of the sublime, high queen of queens, whom Nabu and Tasmetum guided, the sublime favorite of the god Ea ('lord of the Shining Eye'). When I, in my youth, was the son of nobdy, but constantly worshiped the shrine of Nabu and Marduk, my lords, and my mind was directed to a continuance of their laws and obedience to their orders and to the maintainance of law and justice, then the god Marduk, who knows the hearts of gods and men, who continuously watches the paths of nations, saw my heart and placed me, the insignificant one, who was not considered among the nations, at the head of the country in which I was born and called me to the dominion over country and people. He ordered a tutelar genius to stand at my side and make me successful in all that I undertook. Nergal, the all powerful among gods, he asked to, assist me, subduing my opponents, slaying my enemies. I, the weak and lowly worshiper of the Lord of lords, with the mighty assistance of Nabu and Marduk, my lords, repelled from the country Akkad the Assyrians, who from time immemorial ruled over all nations and had forced under their yoke all the inhabitants of the country; I threw off their yoke. Then E-PA-TU-

TI-LA, the Temple of Ninib's, which lies in Susana, which had been built by a prior king, but not completed. I undertook the renovation of this Temple. I called together the men of the gods Bel, Samas and Marduk, ordered them to carry the mason's bucket (?) and the brick basket (?). I finished the Temple without slackening. I supported the roof with strong beams and put high doors into the gates. The Temple I made shine like the Sun and radiate for Ninib, my lord, like the day. Whoever shall become king in the future, be it my son or my grandson, who follow me, whose name Marduk shall call to the dominion of the country, do not seek alone power and strength. Worship the Temples of Nabu and Marduk so that they may subdue your enemies. The lord Marduk looks through the mouth and sees the heart. Whoever piously worships Bel, shall rest secure in his position, whoever worships the son of Bel, will live eternally. If this Temple should decay and you should renovate it, read this document and place it beside your own. At the command of Marduk, the great lord, whose commands are unchangeable, may your name continue to the days of eternity!

THE EXCAVATIONS OF THE KASR-MOUND IN 1901

BY DR. KALDEWEY

Since the publication of the Kasr-plan of January, 1900, the Minmach temple has been further excavated; the continuation of the fortification wall bounding the main city on the north, as well as of the adjacent canal farther westward, has been proven by means of a deep trench; a part of the palace of the main city has been uncovered and also a part of the palace of the southern city from the southeast corner of the latter along the southern edge and extending to its northern boundary.

The following observations may serve as a basis for a correct understanding of the character and the succession of the various structures.

Only the fortification walls were carried down below the underground water, and only down here do the bricks lie surrounded by asphalt, so that they are hard to separate. In the upper parts, however, the asphalt which covers the lower layer of bricks is separated from those resting upon it by a layer of reeds or clay. The stamped side always lies downward and therefore usually does not come in contact with the asphalt.

The walls of the palaces, on the contrary, are carried down only near to the underground water. The spaces between the various walls were in earlier times filled up with sand and earth, and in more recent times with a packing of broken brick. A remarkable exception to this rule is furnished by the palace of the main city, in which the whole building area is uniformly covered by a compact masonry-work made of broken brick, while the real building walls rest on this terrace at a height of 8 meters above the ground. Older building walls are treated similarly to the upper parts of the fortification walls, viz. with asphalt in the joints, and an intervening layer of reeds or clay, preventing the layers from adhering to each other. In later ones lime mortar takes

the place of asphalt. At an interesting transitional period a favorite method was to build one-half of a wall in lime and the other in asphalt. I believe that it is especially in this transitional form that we may recognize distinctly that the introduction here of the lime mortar in wall construction is an invention of Nebuchadrezzar. In his inscriptions mention is never made of "lime mortar," but only of *Kupru*, which is translated as asphalt; I would therefore rather render this word by the general expression "mortar." Late walls, as for instance, Sassanidic, have for the most part simply clay in their joints.

Nebuchadrezzar used bricks in the beginning of his architectural career, of which only about every hundredth one received a stamp, this being that of a lion with an Aramaic inscription over it. This inscription . . . contains, I believe, the name of the "Nitocris," which has been handed down in a Greek form, and concerning whose architectural work in Babylon the Greeks have reported so voluminously. The palace walls in the southeastern part of the southern city are built with bricks of this stamp, and the palatial inscription of Nebuchadrezzar has been found incorporated in the same walls.

The oldest Babylonian stamps of Nebuchadrezzar are of 6 lines, end in *a-na-ku*, and add the name of the father with a simple *tur*; they are frequent in the southern city. The later ones, of 7, 4, and 3 lines, omit the *a-na-ku* at the end and introduce the father's name, with *aplū asaridu sa* instead of the simple *tur*. Exceptions to this are very rare. The manner of writing varies. The latest stamps are the three-line ones; they seldom occur in the southern city (for instance, in the pavement of the large court), but are frequent in the main city. The stamps of Neriglissar and of Nabonid are also three-lined.

Walls in which no stamps occur, especially when the bricks also have a smaller dimension (30 or 31 cm. as against the normal dimension of 33 cm. usually found in Nebuchadrezzar's walls), can either be ascribed to Nebuchadrezzar's first period, or they are, as generally speaking in most cases, will seem the more probable, older and belong to Nabopolassar and the Assyrians. The lower parts especially, of the fortification walls of the southern city, consist of stampless bricks, as: the arched gate and the deep-lying old palace to the westward. Stamps of Assyrian kings are not found on the "Kasr." Only the floor bricks of Esagila bear such stamps.

The oldest section of a palace which we have thus far found lies in the southern city. Its floor lies very deep; 780 m. above the ground level. The bricks have no stamp; the spaces between the walls are, as is nowhere else the case, filled up with masonry of clay-bricks. From this I believe I may conclude that this is Nabopolassar's palace, which Nebuchadrezzar found upon entering on his reign, and in which he dwelt during the work of enlargement undertaken by him. This old palace of Nabopolassar was comparatively small (possibly 70 m. by 90 m.). It stood, however, within a rather large area, which was inclosed by an old fortification wall (approximately 340 m. by 200 m.).

The fortification wall which encloses this area is *Ingur-Bel*,¹ as I believe I have shown to be probable in a previous article. *Nebuchadrezzar* found this wall in a state of decay. He took away the southeast corner and rebuilt it, re-enforced the eastern stretch by an inner *Kisu*² and most of the southern stretch by an inner and outer *Kisu*, and evened off and heightened places in the southern part which had settled outwards. The total amount of work which he put on this great work can only be thoroughly appreciated after the excavation has been completed. In the southern city are found 2 sections of inscribed bricks of *Nebuchadrezzar*, which refer to the construction of *Ingur-Bel*, and two sections of building cylinders of *Sardanapallus*, which treat of the construction of *Ingur-Bel* and *Nimitti-Bel*. These furnish special documents for determining the situation of these "great walls of Babylon" on the *Kasr*. Therefore the question only remains whether the southern city is *Ingur-Bel* and the main city *Nimitti-Bel*, or whether the southern city is not perhaps *Nimitti-Bel* and the main city *Ingur-Bel*. This question has been decided in favor of the former assumption, as far as I can see, by the inscription on cylinder No. 15,397 (of which I have treated previously³), because the duplication of *Nimitti-Bel* in the east is there described in connection with the palace of the main city and this is true only with regard to the main city.

Nebuchadrezzar's general plan for the completion of the city of "Babylon" was to raise the whole level to the elevation of the Procession Street in the east. The masses of earth which were necessary for this filling-in were taken from the immediate vicinity and in this manner the city was made higher and the surrounding water area deepened at the same time—a sensible idea from the standpoint of fortification.

Of *Nebuchadrezzar*'s palace, which was to cover the entire area of the southern city, including the antiquated palace of *Nabopolassar*, the part situated east of the latter was first constructed and made ready for habitation. The construction began in the southeastern corner of the city. When this eastern part, with its elevated floor (10 by 12 m. above the level of the ground), was complete and ready for habitation, the main access to it lay through the gate in the narrow street which still led along the east front of the old palace. This street lay considerably lower (in round numbers 7 m. above the level of the ground) than the new palace. As a consequence thereof 2 steep stairways led up to the large court of the new palace. A retaining wall of clay bricks, represented by hatching in the plan, bounded the court terrace provisionally during this time in the west. The retaining wall and the stairways were, however, no longer necessary, and were covered over by a new leveling with the more elevated pavement, as soon as the western part of the new palace, which had now completely covered over and buried the old *Nabopolassar* palace, was also complete up to the new universal elevation. This palace, which covers the whole southern

¹ See *Mitteilungen der Deutschen Orient-Gesellschaft*, No. 4, p. 13.

² See *Mitteilungen der Deutschen Orient-Gesellschaft*, No. 4, p. 4.

³ See *Mitteilungen der Deutschen Orient-Gesellschaft*, No. 11 p. 7 et seq.

city and far exceeds the limits of the Nabopolassar palace, is spoken of by Nebuchadrezzar in the stone slab inscription Col. VII, 61—VIII, 26.

The palace contained a great number of compartments, which consisted of small square central courts with the rooms surrounding them. These are connected with each other and with the larger courts by corridors with many doors. To the compartment at A, a direct entrance led through the fortification wall, this entrance having been constructed over the spot where the old large arched gate had been situated and abolished when the reconstruction took place. On the level of the old street a canal ran, which carried off the surface water from the palace. This was originally done through a small arched gate in the old southern wall, situated a little farther westward, but later through a new breach through this same old wall.

On the southern side of the large court lay the vast main hall with its specially thick walls, a niche in its southern wall, and 3 gates in the northern front. On the latter was situated the tile ornament which Mr. Andræ has represented. These ornaments, produced in colored tile enamel, are thus far unique. No where else have we become acquainted with anything similar. Especially impressive is the idea of the ornamental reproduction of a set of columns with mighty voluted capitals, when it is considered that there is no place for the columns themselves in these palaces; in every place where they might be expected, especially on the front of the "throne hall" itself, simple doors are found in their stead. There were indeed 2 supports in one small court. They each consisted of 2 unhewn palm trunks which, being let into the ground, were surrounded at their base by a round walling of bricks and asphalt coated with lime. This is, however, a subordinate, secondary arrangement which, if possible, belongs to a later, Persian period. No one will imagine that Nebuchadrezzar was entirely unacquainted with columns. The opposite is shown by their representation on the afore-mentioned ornaments. But the column really has absolutely no place in Babylonian architectural customs, and in the Babylonian ground plans which we know from Sippar, Borsippa, and Telloh, there is not a single place appropriate for a set of columns, just as there had been none hitherto in Babylon. Thus, the idea of the ancient origin of the column in Babylon often advanced in the history of art seems to me to be due to a confusion of the idea of the column with that of the semi-circular moldings of the vertical wall ornaments so numerous on Babylonian buildings.

The "outer work" of Babylon, Nimitti-Bel, touched to the north the fortification of the southern city, Imgur-Bel. The manner in which it joined it, is unknown to us. At first Nebuchadrezzar constructed this fortress by erecting a simple but very strong wall 17 m. thick, the massive remains of which we have found. But the district enclosed by this vast wall did not satisfy the desire of the king for expansion. He abolished the mighty work, advanced the northern wall to "8," and

prolonged to that point the old eastern stretch toward the north. We have found a cylinder [No. 7,327], which treats of the construction of both these walls of Nimitti-Bel, and gives the thickness of one as 23 brick-widths (which corresponds exactly to the wall as found) and of the other as 32 brick-widths. In the space enclosed by these 2 walls (the 2 other boundaries being formed by the Euphrates and the southern city) Nebuchadrezzar erected a continuous terrace of broken brick work [*bi-ti-ik a-gur-ri*, E. I. H. VIII, 53] to a height of 8 m. above the level of the ground. Upon its upper surface he built the walls of the new palace, which was to outshine everything which had hitherto existed. The bricks in these castle walls are accordingly the best in the whole "Kasr." They are made with great care out of bright yellow clay as hard as glass, while previous ones were of a more or less plain red-brown color and full of flaws, and the asphalt mortar in use up to that time is replaced by pure white lime mortar. The spaces between building walls standing on the terrace were filled in with brick packing and lime mortar down to the floor, which once rested upon it. The surface of the brick terrace lies 8 m. above the ground level. The floor of the palace itself cannot have lain less than 15 m. above ground level. This gives a solid mass of walls of 648,000 cubic meters up to the floor level alone, not counting the palace walls towering above it. If these were to be completed, according to E. I. H. VIII, 64, in 15 days, not less than 43,200 men must have been kept busy daily, as one man and an assistant together could not produce more than one cubic meter per day. In this swarm of 2 men to each square meter the men must doubtless have trampled one another to death. I believe therefore that by the *si-bi-ir* of the palace, which Nebuchadrezzar says was completed in 15 days, probably the whole palace is not meant, but merely a particular part of the construction, the meaning of which we are not yet able to recognize.

The plan of the building was several times changed during the execution; even the materials, the kind of bricks and of lime mortar vary within these construction periods, which not only clearly indicate that the time occupied in construction was rather long, instead of being unusually short, but also that the royal architects took a continually active part in the work. Moreover, as much of these walls have been stolen away by Arabian brick thieves of past ages, the exploration of this part of the ruins is attended by greater difficulties than in the southern city. The lower parts of the ruins possessed attractive qualities for the brick thieves; the mortar is not so firm there and the stones therefore separate better from one another. As a consequence the whole ruin is undermined by deep-lying tunnels, which latter partly collapsed, the result being that the upper walls burst, sank, and fell. This also renders the examination very difficult, for when the rubbish is thoroughly cleared out the upper walls are often found to be standing on hopelessly weak foundations, which leads to the fear that they will entirely collapse. In the north lay the terminus of the entire struc-

tural system. Here the outer edge of the terrace is more regular and constructed with the character of an ordinary wall, but blends, so to speak, with the packing of the adjoining terrace. To the west of the wall lay a court, whose walls were decorated with gay-colored lions in relief and with glazed ornaments.

This is therefore the extension (in the construction of the city) of which Nebuchadrezzar speaks in the stone slab inscription [VIII, 42 *et seq.*]. In its plan the king saved the canal, the street and the Temple of "Babylon." In other words, he did not make the extension toward the east, where the Ninmach temple and the Procession Street lay, but toward the north.

The fortification work which encloses this part of the palace is "Nimitti-Bel." In order to further strengthen the east front of this work of fortification the king doubled here the fortification wall. Between these 2 walls of Nimitti-Bel ran the Procession Street *Aiber-shabu* of Marduk. On each side of them stood the lion frieze on the lower parts of the fortification walls. *Ai-i-bur-sa-bu-u* is an abbreviation. The full name of this stretch of street is handed down in the inscription of Wadi Brissa.¹ Here, in Col. VII of the ancient Babylonian inscription, Nebuchadrezzar speaks, in lines 43 to 50, of the Marduk street and the Nabu street in Babylon, which he says he provided with a high embankment and constructed of asphalt and bricks. The Marduk street extended from *Istar-sa-ki-pat-te-c-bi-su* to the *El-lu* gate. As the limits of the street here given are exactly identical with those given in E. I. H., Col. V, 45 to 48, it must be assumed that the third and fourth signs in Pognon were wrongly read, and that in reality *A'-bur* stands there. The full name would then read here "*Istar-A'-bur sabe-su*."

The mentioning of the Nabo street by the name of *Nabu-di-tar ni-si-su*, which follows, will probably be of importance in our excavation; this street led from *Ig-kip-su-na-ka-ar*, if Pognon read this right, to the "entrance of Nabu into Esagila." In the remaining inscriptions the name of the Nabo street has not been known hitherto. In our brick inscription also the names of the 2 streets are not given, and only a Marduk and a Nabo street are distinguished. There is, moreover, mentioned in the Wadi-Brissa inscription [at the top of Col. III, 24] *a ma-as-d[a-ha]* of Marduk, which is said to extend from the landing place of the procession bark "Kura" to Esigisi. It is to be hoped that further excavations will furnish us instruction relative to these data also. A new copy of the Wadi-Brissa inscription is much needed!

Nebuchadrezzar sums up, according to his custom [E. I. H. IX, 19 *et seq.*], the results of the work discussed immediately before, in the following words: "I ERECTED A MIGHTY FORTRESS OUT OF MORTAR AND BURNT BRICKS, MOUNTAIN HIGH AROUND IT. BESIDE THE BRICK

¹ *Bibliothèque de l'école des hautes études. Les inscriptions de Wadi Brissa*, by Pognon, Paris, 1887.

FORTRESS I BUILT A FORTRESS OF MIGHTY BLOCKS OF STONE,"—*si-ti-ik sadi rabuti*. In my opinion both these works are probably the eastern and northern fortification walls of the main city. For at the northern wall, and there only (nowhere else on the Kasr), are found mighty building blocks of limestone—the same material that is designated as *sadu* stone on the pavement blocks.

The most important place on the "Kasr" just now is obviously the one where Imgur-Bel and Nimitti-Bel come in close contact with each other on the east front, and here we shall, I think, have to resume the excavations next.

The success of our labors on the "Kasr" consist especially, according to what has been said, in the clearing up of the magnificent picture which we must gain of Babylon and the Palaces of Nebuchadrezzar.

The topography of Babylon has hitherto suffered under an erroneous fundamental conception, viz.: The setting down of the 2 city walls of Herodotus as identical with Imgur-Bel and Nimitti-Bel. Up to the most recent times even Dr. Delitzsch has maintained that Imgur-Bel must have at least included Esagila in its enclosure. This is an assumption for which no proofs can be adduced either from the inscriptions or from the locality. Imgur-Bel and Nimitti-Bel are, as far as our knowledge—even philological—extends up to the present, nothing but the 2 fortifications on the Kasr. The idea that these 2 walls lay, so to speak, concentrically in one another, is based on a foundationless supposition. In Khorsabad there is, as is known, also a *Duru* and a *Shalchu*, but no trace of concentric walls. *Salhu* means, according to Delitzsch, a fishing net. I therefore believe that if one wished to render the word in German the sense would most nearly be approached by the expression *Reuse* [bow-net]. . . . The designation "outer wall" is certainly correct, only the expression must not be understood as meaning that it extended clear around the *Duru*.

We began our excavations at Fara, July 10, 1902, with a long ditch from north to south, through the northern part of the ruin. Our results up to the present time are as follows:

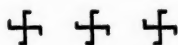
The ruin is very old, even the upper stratum. This is proven by numerous knives and saws of flint and obsidian, stone hatchets, tools made of stone and bone and the utter absence of any remnants of a later period. Ill-shaped bronze coins and small copper or bronze utensils are found here and there. The pottery of simple design resembles that of Sargal; flat vases, chalice goblets, and oval pots. A bigger vessel with a socket and without a handle, as they are painted on the old seal-cylinders, is found more frequently—all without any decoration. Aside from these we find fragments showing attempts of a phantastique ornamentation and simple cups of beautiful white stone (marble, etc.).

We also found in the ditch about 400 stamps of seal cylinders. They are round pieces of clay and show almost all the same impression. Most frequent is the struggle between the man-headed bull and the

lion killing an antelope. The movements are exceedingly full of life and the heads with the strong nose and the single round eye look like bird heads. The weapon is peculiar—a long staff, at the end of which a half-moon is attached and which is held in the middle and used like a poniard. The technique shows no trace of the polishing-wheel.

In the same stratum lay several clay tablets, with a simple design scratched on them—bulls, man-headed bulls, tools, etc., and finally a few tablets with very old cuneiform characters.

The buildings are composed of baked and unbaked bricks of the old rectangular form. On the covered surface lines and impressions are made with the finger; only few of the walls are straight-lined. But there are a great many rotundas on the hill; they have a diameter of 2-5 m. The walling consists of 2 or more concentrically placed vessels. This is the typical construction of the walls here. The rotundas are surrounded by a vault very similar to the burial vault in Mugheir or the *Tholeu of Mycenae*. One of these rotundas we have cleared down to the very bottom; it was filled with old rubbish, bricks, broken pottery, fish-bones, etc. In the upper part of another one we found 4 human skulls. The modus of interment I have not yet been able to comprehend. The skeletons lie coffinless and in a disorderly arrangement, together with many ornaments; necklaces of agate and lapis-lazuli, pearls of shells, corals, mother of pearl, amethyst, also a silver earring (?) of a peculiar form.



MOHAWK POTTERY

BY W. MAX REID

THE XX Report of the *Bureau of American Ethnology* for 1898-99 by the late J. W. Powell, is exceedingly full of valuable information concerning the Aboriginal pottery of the eastern United States, but I have looked in vain for information regarding that section of the State of New York that is abounding with more interesting history (both Aboriginal and post-Columbian) to the square inch than any other section of the United States. I refer to the Mohawk Valley and the lake region, the home of the Iroquois Confederacy.

He devotes 2 pages to Iroquoian pottery, but his knowledge seems to have been obtained almost entirely from the Cherokees, while he dismisses the Mohawk Valley with 1 line and 2 inferior illustrations. It is true, in a general way, that the method of making pottery was practically the same in all of the eastern section of the country, while in the South and Southwest the earthenware bears evidence of contact with the more experienced potters of Mexico and South America in the methods of decoration, but in no part of North America do we find evidence of the wheel, lathe, or furnace having been in use.

It has been noted that in every country, basketry and the art of weaving from rushes and similar material, preceded the making of pot-

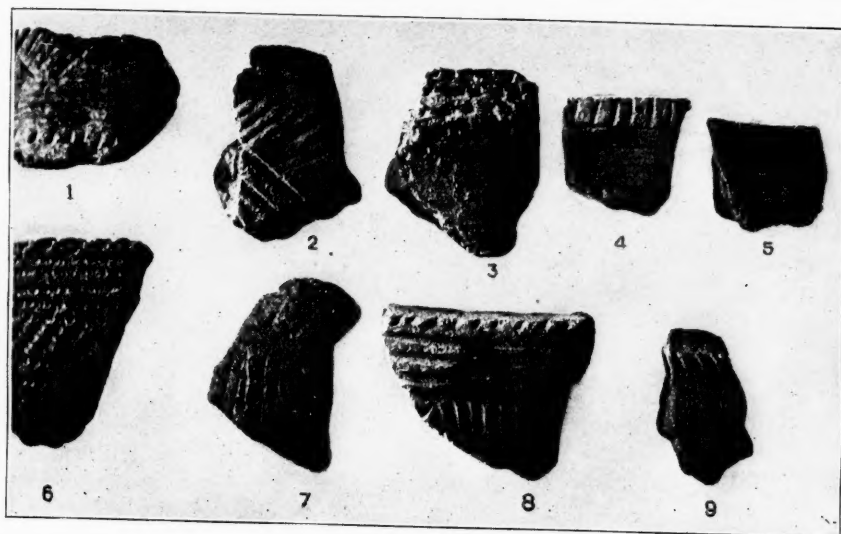


PLATE II.

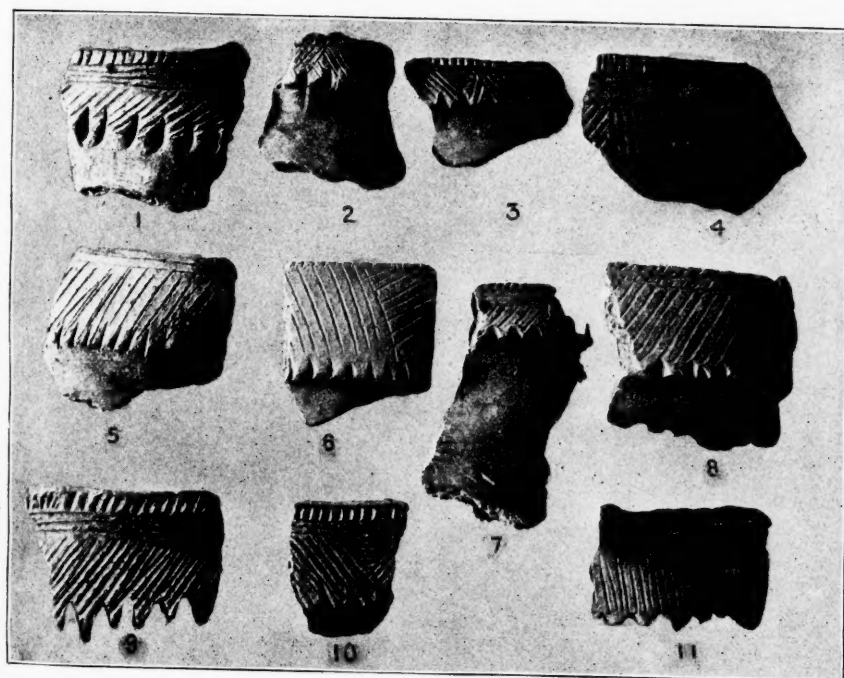


PLATE I.

tery, and that the Amerind* probably used pitch or clay to make their primitive receptacles water tight, and it is suggested by Dellenbaugh that this fact, in a measure, accounts for the fabric marks found on many sherds or fragments of earthenware found in various parts of the United States.

In the Mohawk Valley fragments bearing these marks are seldom if ever found. Indeed, we do not expect to find them on pre-historic sites of Mohawk castles, owing to the comparatively recent occupation of this beautiful valley by the Mohawks.

The traditions of the Mohawks, or as they like to be called, Cahan-iagas, and information gathered from the relations of the Jesuits tells us that they were driven out of the Island of Montreal or Hochelaga subsequent to 1535, when Jacques Cartier met them at Hochelaga, and previous to 1609, when they were defeated in battle by Champlain on the shore of the lake which now bears his name. Probably between 1580 and 1600, tradition also tells us that they were driven from their island home by their kindred, the Hurons, and some of the Algonquin tribes.

They brought the art of pottery with them, and many fragments are found on their pre-historic sites, 2 of which are located about 4 miles north of the Mohawk River, whose age is determined approximately by the entire absence of any European articles. One of these, the Cayadutta site, near Johnstown, N. Y., has yielded up numerous sherds, bearing the distinctive marks of Mohawk handicraft, but no whole vessels.

I have in my collection 65 decorated fragments, which represent as many different vessels, no two being exactly alike, and all bearing the distinctive conventional arrangement of straight and diagonal lines and notches around the top band. See plate I. Some of the lines are wavering, as though made by an unsteady or inexperienced hand; others show straight lines regularly distanced as though executed by a rude though experienced artist.

No. 1, Plate I, is a fragment of pottery found on the Cayadutta site near Sammons ville, N. Y., and judging from the thickness of the sherd and the segment of its circle it is probably a part of a vessel 12 or 13 in. high and $9\frac{1}{2}$ in. in diameter at the mouth. The pointed top would indicate a triangular jar similar to the top of the Horrachs jar [Plate IV]. Nos. 4, 5, 6, 7, 8, 9, 11, of Plate I, also are sherds from large jars, the thickness of the top edge of the fragments being $\frac{3}{8}$ of an inch.

Plate II represents sherds from small pots. Figures 3 and 6 are interesting as having lately been found in a grave near Fort Hunter, N. Y., the markings being of a different character from others represented. Plate III represents a Mohawk pot that was recently found on the shore of Lake Pleasant buried in the sand. When it was found it

*This name is a substitute for the misnomer "Indian." Its use avoids confusion. See *Romance of the Colorado*, by F. S. Dallenbaugh.



PLATE IV. THE NORRACKS JAR



PLATE III. THE HANSON POT

was whole, with the exception of the fractures that are seen in the photograph.

This specimen is interesting not only on account of its size, but of the region where it was found, because 3 of the largest pots of Mohawk manufacture that have ever been found entire were discovered in the Adirondack region.

They have been named the Richmond, Hanson and Horracks jars. The "Richmond" pot is thus described by Dr. W. M. Beauchamp: "It was found by an Adirondack guide some years since, in a cave in Otter Creek Valley. The contraction is quite near the rim, and there is simply notched ornamentation around the narrow part. The greatest diameter is below the center and is 13 in., being 3 more than across the top. The height is 14 in." The "Hanson" jar is now in my possession. The size of the Hanson pot is 10 in. at its narrowest diameter, and $10\frac{1}{2}$ in. across the top, $13\frac{1}{2}$ in. at its greatest diameter, and $13\frac{1}{2}$ in. high. As will be noticed, the top is scalloped in broad segments of a circle, the inside ornamented with shallow indentations.

The band at the top is $2\frac{1}{2}$ in. wide, the lower edge being garnished by notches broader and deeper than around the top edge. Around this band is a series of straight and diagonal lines in the irregular regularity which is a marked characteristic of the fragments of pottery found on pre-historic sites of Indian castles in the Mohawk Valley. The material is of blue clay, the jar being baked in the sun after receiving a thin coat of dull pink silt. The implements of manufacture were evidently of the most primitive character, the wheel and the furnace being unknown to the Mohawks.

Within a few months another interesting "find" has been made in the Adirondack region between Lake Pleasant and Lake Piseco, by a man named Horracks, who while hunting was caught in a sudden down-pour of rain and obliged to seek shelter under a ledge of rocks near a small cataract called by the natives, "The Little Falls." While waiting for the rain to cease he noticed what seemed to be a reddish-brown boulder near at hand. Carelessly striking it, it gave forth a hollow sound. Somewhat curious he dug away the earth with his hunting knife and soon laid bare a symmetrically formed earthen pot.

This pot stands 10 in. high. At its greatest circumference it measures 30 in., and at its smallest 20 in. The circumference of the top or mouth of the pot is 24 in. The inside of the pot bears signs of use, but the outside, as in most specimens found, shows no trace of fire. The bottom is rounded, as is seen in the accompanying illustration [Plate IV], and the ornamentation is distinctly Mohawk.

This is a well preserved specimen and is rare on account of the shape of the top, which is cut in 3 curves, forming 3 points, which give it a triangular appearance. It is a singular fact that the 3 largest jars of Mohawk pottery now in the valley were found in the lake region of the foothills of the Adirondacks—the Richmond, the Hanson and the Horracks jars. The present owner of the last-named jar is D. F. Thompson, of Troy, N. Y.

EDITORIAL NOTES

PRE-HISTORIC PILE-STRUCTURES IN PITS: Mr. L. M. Mann has been excavating the ancient inhabited sites at Stoneykirk, in Wigtownshire, Scotland. Attention was first called to these by M. A. Beckett, who noted a row of depressions in the land on the edge of a plateau, which proved to be "silted-up pits;" 7 ft. below the surface of one of them decayed logs were found of "round timber, more or less vertically placed." In the silt, chips, cores, flint and stone implements, charcoal and fragments of pottery were found. Also "twigs and branches belonging to supposed wattle-work." The timber had the appearance of having been shaped with stone axes. The lowest stratum is a bluish clay and "suggests that a structure of wooden piling was erected in order to provide a dry floor. The ornamentation on the pottery and other evidence point to the Neolithic age as the period during which the sites were used."

EXCAVATIONS AT ARBOR LOW, ENGLAND.—The second part of the 58 volume of *Archaeologia*, just issued to Fellows of the Society of Antiquaries, contains a report by Mr. H. St. George Gray on his excavations at Arbor Low, organized by a Committee of the Anthropological Section of the British Association. Arbor Low lies 5 miles to the southwest of Bakewell, in Derbyshire. It consists of a circle of stones with inner stones in the direction of radii of the circle, now numbering altogether 46, surrounded by a fosse and vallum, and adjoining a tumulus on the southeast. The diameter measuring from the crest of the rampart is 250 ft. On the southwest a ditch can be traced for some distance in a southerly direction. The tumulus, when explored by Mr. Bateman in 1845 contained 2 small urns and other objects of the Bronze Age. Mr. Gray's excavations were begun on August 8, 1901, and continued in 1902. He found many flint flakes and flint and chert implements, portions of a deer's horn pick, a human skeleton and other objects, but none of metal and no primitive fictilia. He concludes that the circle belongs to the late neolithic period, to which Prof. Gowland attributes the erection of Stonehenge.—*London Athenaeum*, April 2, 1904.

PORTUGUESE TO THE CLYDESIDE DISCOVERIES: The Rev. H. J. Dunkinfield Astley read a paper he prepared on this subject, in which he dealt at considerable length with the very curious and puzzling discoveries made during the past year by Father Jose Brenha and Father Rodriguez, among the groups of dolmens situated at Pouca d' Aguiar, Traz os Montes, Portugal. In 1894 the attention

of Father Brenha was first directed to the examination of these dolmens, and he has, in company with Father Rodriguez, since systematically explored them. The whole province of Traz os Montes abounds in dolmens, situated for the most part high up in the mountains, the great number of them in a relatively small district, testifying, in Father Brenha's opinion, to the density of the population and its long persistence in Neolithic times. These strange discoveries consist of amulets of stone, pierced for suspension, bearing cup and ring marks and ducts, which were found in a chamber which presented the appearance of having been the secret treasure chamber of the tribe, and with them were found 4 figurines representing females, one of which was egg-shaped, the lower part of the egg terminating in the male face. Besides these curious objects there were stones with rude drawings of animals, such as horned rhinoceros, and reindeer, etc., and more remarkable still, several stones were found with inscribed letters in a script bearing a close likeness to the script discovered at Knossos by Mr. Arthur Evans. It is, however, the finding of the amulets and figurines so closely resembling those discovered by Mr. Donnelly on Clydeside, in the crannog, and at the hill fort of Dumbuie, that makes this Portuguese discovery so important in its relation to the evidence afforded by the Scotch examples of what would seem to have been a particular phase in the development of peoples in the Neolithic stage of culture in Europe.

ROPE MAKING BY THE ANCIENTS.—The art of rope making by the ancients is well known, and ropes of leather and of various kinds of fiber have been found in the earliest centers of civilization. Ropes made of palm have been found in the Tombs of Beni-Hassan, Egypt, and on the walls of the Tombs is shown the process of preparing hemp. In some of the oldest Pueblo and Cliff Ruins of the Southwest have been found ropes twisted in 3 strands, showing very expert workmanship. But it was supposed that wire rope was a comparatively modern invention until excavations at Pompeii brought to light a piece of bronze wire rope nearly 15 ft. long and 1 in. in circumference. It consists of 3 strands laid spirally together, each strand being made up of 15 wiles, twisted together. Its construction does not differ greatly from that of the wire ropes of to-day. This must date back at least to the dawn of the Christian Era, as Pompeii was destroyed A. D. 79.

HISTORY OF THE ANCIENT PEOPLE OF THE ORIENT:—A new edition, the sixth, of Maspero's *Histoire Ancienne des Peuples de l'Orient* has just appeared. The alterations of the old editions are mostly to be found in those parts dealing with Egypt.

ORIGIN OF JEWELRY:—Prof. W. Ridgeway in a recent lecture before the British Anthropological Institute on *The Origin of Jewelry*, propounded the theory that jewelry did not have its origin in æsthetic, as commonly supposed, but in magic, and that ornaments were originally worn not as ornaments, but as amulets to ward off evil. The æsthetic consideration, however, entered in at an early stage.

The natives think that if they wear some part of a brave animal, some of that animal's bravery will enter into them; for example, in India tigers' whiskers are eagerly sought after by the natives. He considers that the Babylonian cylinders, Mycenaean gems, and Egyptian Scarabs had their origin in "sympathetic magic" and that their use as signets was purely secondary.

Dr. Soteriades has discovered recently quite near Chaironeia a group of very important prehistoric houses, doubtless of the neolithic age; the vases found here resemble very closely those of the prehistoric houses discovered 2 years ago by Tsountas.

Last spring, after completing his work on the tomb of the Macedonians, he investigated a tomb near Orchomenos, in plain not far from the road to Lebadeia. In the vertical shaft sunk from the summit of the cone to a depth of 5 m. he found only a few prehistoric vase-fragments, but it cannot yet be stated whether the mound itself dates from prehistoric times, as these few vase-fragments might have been in the earth used to build the mound. Work was stopped by heavy rains and surface water from springs.

DISCOVERY OF A ROMAN BAKER'S SHOVEL:—A baker's shovel, such as is still in use for putting bread into the oven, was discovered at the bottom of a recently excavated Roman well in the Saalburg. Similar instruments are represented on Roman frescoes, but this is the first one that has been found. It is of beechwood and is made in one piece. A silver coin of Antoninus Pius, a bronz coin of the Empress Faustina and a well preserved leather shoe were among the further contents of the well.

NOTE ON STONE IMPLEMENTS FROM PAHANG.—MALAY PENINSULA.—(1) 13 well-shaped stone implements and fragments of implements.

They were found on or near the surface of the ground or in the possession of natives in Pahang in the Malay Peninsula. The native Malays know nothing of their origin, but suppose them to be supernatural and seem to associate them with thunderbolts.

Most of the implements are of the same sort of stone. This is found in several parts of the State. Some of the implements are decomposed on the surface, while others have not suffered decomposition or have had the decomposed matter rubbed off. Similar stone implements are found in the neighboring States.

(2) A rude implement was found about 2 ft. below the surface in stiff clay.

(3) The rudest implement was found by myself at the bottom of an alluvial gold mine in the Tui Valley of Pahang, and it had not been disturbed in its position when I found it. It lay in a deposit of gravel on crystalline limestone rock, and over it had been a deposit of gravel or clay 43 ft. thick. This clay undoubtedly had been derived from the decomposition of some green-stone hills and ridges which form the

sides of the valley. It is known that these hills had originally been overlaid by the limestone on which the implement rested, and it was only when sufficient of the limestone had been dissolved away to allow the green-stone to emerge that this latter rock began to yield the clay, which was derived from its decomposition. The amount of denudation or dissolution of the limestone since this emergence has been at least 300 ft. The gravel in which the implement was found had been laid down by river action when the surface of the limestone was at least 300 ft. higher than it is at present, and it would seem that at this period or earlier the implement had been fashioned and then lost in the gravel.

It might be contended that the green-stone hills may not have decomposed and yielded their clay immediately on their emergence from the limestone, but it is improbable that there would be any great interval of time between those 2 occurrences because the green-stone would be decomposed by the action of the surface waters, which would reach it through fissures in the limestone while it was still covered by a great thickness of that rock and it would thus, on its emergence, be in a condition very favorable to rapid denudation. I have examined fissures which go down several hundreds of feet in the limestone at the Tui, and the green-stone is completely decomposed to great depths.

It would seem that we might take the denudation of 300 ft. of limestone as an approximate measure of the antiquity of the implement. The rate of the denudation of the limestone is not known, but it is comparatively rapid under the conditions of climate and vegetation prevailing in Pahang. The temperature is high and the waters are heavily charged with carbonic acid and products of vegetable decomposition. In any case, it would seem that the implement must be of very great antiquity.

(4) The 2 fragments of a stone ring were found about a foot deep in the surface soil at the Tui. They are similar to, but are better formed than some other rings which were found near the Tanom River at a place 15 miles further north. One of these latter is, I believe, in Lancing College at Brighton, and several are in the Museum at Taiping in Perak. The Tui ring has been very carefully framed and made very accurately circular. This latter can be most readily shown by placing the ring on a sheet of paper, tracing round it with a pencil, and testing a circular arc formed by a pair of compasses.

Neither Malays nor Chinese in Pahang have any reasonable theory of the origin or possible use of these things, and it seems very improbable that the rings can have been made by either of these peoples. Assuming that the rings would be made on some system of measurement I tested the dimensions of the Tui one, but could get no clue to any known system. The use of the rings is also a mystery. These cannot have been worn on the person as ornaments and they are too light and fragile to have been used as cutting tools. The only supposition that suggests itself is that they may have been religious symbols.—By R. M. W. SWAN in *Man*, London.

